Editor: Dr Margaret Wassilieff

Editorial Advisory Board

Dr P. J. Brook (*Chairman*)	Plant Diseases Division, DSIR
Dr P. J. Brownsey	National Museum of New Zealand
Professor R. G. Thomas	Department of Botany, Massey University
Professor A. P. Wylie	Department of Botany, University of Otago
Dr M. S. McGlone	Botany Division, DSIR

New Zealand Journal of Botany
Volume 23, Number 1 published 5 April 1985
Volume 23, Number 2 published 12 August 1985
Volume 23, Number 3 published 22 November 1985

This journal is listed in: *Biological Abstracts; Bulletin Signaletique; Chemical Abstracts; Current Contents; Ecological Abstracts; Forestry Abstracts; GeoArchive; Index to Book Reviews in the Sciences; IRL Life Sciences Collection; Microbiology Abstracts–Section C; Science Citation Index; SIRIS/New Zealand Science Abstracts.*

Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by the Department of Scientific and Industrial Research for libraries and other users registered with the *Copyright Clearance Centre* (CCC), provided that the stated fee per copy is paid directly to the CCC, 21 Congress Street, Salem, MA 01970, USA. Special requests should be addressed to Science Information Publishing Centre, DSIR.

The code on the first page of an article indicates the above consent and includes the fee per copy to be paid to the CCC.

© *Crown Copyright*

ISSN 0028-825X

Published by
Science Information Publishing Centre, DSIR,
P.O. Box 9741, Wellington, New Zealand

CONTENTS

Volume 23 Number 1 1985

Chemotaxonomy

Support from flavonoid glycoside distribution for the division of *Podocarpus* in New Zealand — **Ken R. Markham, Rosemary F. Webby, Lynley A. Whitehouse, Brian P. J. Molloy, Christian Vilain, and Rudiger Mues** — **1**

Ecology

The vegetation of the Kaitake Range, Egmont National Park, New Zealand — **B. D. Clarkson** — **15**

The vegetation and flora along an altitudinal transect through tropical forest at Mount Korobaba, Fiji — **J. B. Kirkpatrick and D. C. Hassall** — **33**

The diagnostic value and host relationships of the dependent synusia in the forests of Mount Korobaba, Fiji — **D. C. Hassall and J. B. Kirkpatrick** — **47**

Nutrient returns in litterfall in two indigenous and two radiata pine forests, Westland, New Zealand — **M. P. Levett, J. A. Adams, and T. W. Walker** — **55**

Growth, reproduction, and production biology of mouse-ear and king devil hawkweed in eastern South Island, New Zealand — **W. Makepeace** — **65**

Interference phenomena due to mouse-ear and king devil hawkweed — **W. Makepeace, A. T. Dobson, and D. Scott** — **79**

Some establishment characteristics of mouse-ear and king devil hawkweeds — **W. Makepeace** — **91**

Mycology

Ultrastructural studies of the spermatial and aecial stages of *Melampsora larici-populina* and *Melampsora epitea* on *Larix decidua* — **A. G. Spiers and D. H. Hopcroft** — **101**

Ultrastructural studies of pathogenesis and uredinial development of *Melampsora larici-populina* and *M. medusae* on poplar and *M. coleosporioides* and *M. epitea* on willow — **A. G. Spiers and D. H. Hopcroft** — **117**

Pteridology

Asplenium chathamense — a new fern species from the Chatham Islands, New Zealand — **P. J. Brownsey** — **135**

Reproductive Biology

Aspects of the reproductive biology of *Mimulus repens* (Scrophulariaceae) at Lake Ellesmere, Canterbury, New Zealand — **J. Böcher and M. Philipp** — **141**

Reproduction in the New Zealand taxa of *Pomaderris* Labill. (Rhamnaceae) — **C. F. Harvey and J. E. Braggins** — **151**

Taxonomy
Chordospartium muritai (Papilionaceae) — a rare new species of New Zealand tree broom — **Andrew W. Purdie** — **157**

Book review
Guide to the prices of antiquarian and secondhand botanical books (1979–1982): Flowering plants. By L. Vogelenzang — **John Palmer** — **163**

Addendum — **165**

Corrigendum — **167**

DSIR Botanical Publications — **169**

Volume 23 Number 2 1985

Bryology
New records of some New Zealand mosses — **J. K. Bartlett** — **171**

The bryophyte flora of New Zealand
Taxonomy and distribution of *Ephemeropsis trentepohlioides* and *E. tjibodensis* with a note on the ecology and distribution of *Buxbaumia novae-zelandiae* — **John K. Bartlett and Zennoske Iwatsuki** — **179**

Pohlia australis sp. nov. (Musci) from New Zealand, with notes on some other austral Pohlias — **Jonathon Shaw and Allan J. Fife** — **183**

Ecology
Nymphoides geminata (R. Br.) Kuntze in New Zealand — **J. S. Clayton and C. C. Tanner** — **187**

Aspects of litter production in a New Zealand lowland podocarp/broadleaf forest — **P. E. Cowan, D. C. Waddington, M. J. Daniel, and B. D. Bell** — **191**

Red beech death in the Maruia Valley, South Island, New Zealand — **G. P. Hosking and D. J. Kershaw** — **201**

Notes on the submerged vegetation of Lakes Heron, Clearwater, and Camp, Canterbury, South Island, New Zealand — **C. C. Tanner, J. S. Clayton, and B. T. Coffey** — **213**

New Zealand timberlines
1. Growth and survival of native and introduced tree species in the Craigieburn Range, Canterbury — **P. Wardle** — **219**

New Zealand timberlines
2. A study of forest limits in the Crow Valley near Arthur's Pass, Canterbury — **P. Wardle** — **235**

New Zealand timberlines
3. A synthesis — **P. Wardle** — **263**

Mycology
Some aquatic hyphomycetes from New Zealand streams — **Robyn D. Aimer and Barbara P. Segedin** — **273**

Type studies of the species of *Corticium* described by G. H. Cunningham — **J. A. Stalpers** — **301**

Paleobotany
Casuarinaceae, Fagaceae, and other plant megafossils from Kaikorai Leaf Beds (Miocene), Kaikorai, Dunedin, New Zealand — **J. D. Campbell** — **311**

Reproductive biology
Microsporogenesis and pollen viability in New Zealand taxa of *Pomaderris* Labill. (Rhamnaceae) — **C. F. Harvey and J. A. Rattenbury** — **321**

Protandry, pollination, and self-incompatibility in *Discaria toumatou* — **C. J. Webb** — **331**

Taxonomy
Acaena dumicola Rosaceae — a new species from New Zealand — **B. H. Macmillan** — **337**

Short communication
Notes on frost damage to plants after a severe frost in Dunedin, New Zealand — **Peter Bannister** — **341**

Fruit flags in a temperate evergreen shrub *Corokia cotoneaster* (Escalloniaceae) — **C. J. Webb** — **343**

Book review
The marine benthic flora of southern Australia. Part 1
By H. B. S. Womersley — **Murray J. Parsons** — **345**

Stewart Island plants
By Hugh D. Wilson — **Nancy M. Adams** — **347**

DSIR Botanical Publications — **349**

Volume 23 Number 3 1985

Bibliography
A bibliography of New Zealand lichenology 2. Additions and alterations, 1974–1984 — **D. J. Galloway** — **351**

Ecology
Derivation of vegetation mapping units for an ecological survey of Tongariro National Park, North Island, New Zealand — **I. A. E. Atkinson** — **361**

Wild vascular plants of the Opotiki–East Cape region, North Island, New Zealand — **M. Heginbotham and A. E. Esler** — **379**

Sampling variability in nutrient cycling studies in some forested ecosystems of Westland, New Zealand — **M. P. Levett, J. A. Adams, and T. W. Walker** — **407**

Mycology
Comparative efficiency of the mycorrhizal fungi *Laccaria laccata, Hebeloma crustuliniforme,* and *Rhizopogon* species on growth of radiata pine seedlings — **Myra Chu-Chou and Lynette J. Grace** — **417**

Physiology
Stomatal responses to humidity in *Nothofagus menziesii* — **Ch. Körner and P. Bannister** — **425**

Pteridology
A revised classification of New Zealand pteridophytes with a synonymic checklist of species — **P. J. Brownsey, D. R. Given, and J. D. Lovis** — **431**

Taxonomy
Corybas acuminatus (Orchidaceae) — a new name for the species previously considered to be *Corybas rivularis* — **M. A. Clements and E. D. Hatch** — **491**

Short communication
Pore width in *Heterobasidion annosum* (Fries) Brefeld — **I. A. Hood** — **495**

Book reviews
Flora of New Zealand Lichens by D. J. Galloway — **Bruce W. Hayward and Glenys C. Hayward** — **499**

Ustilaginales of the British Isles by J. Elizabeth, M. Mordue, and G. C. Ainsworth — **E. H. C. McKenzie** — **501**

The New Zealand Beeches: ecology, utilisation, and management by John Wardle — **John Ogden** — **503**

DSIR Botanical Publications — **507**

Notice — **509**

Volume 23 Number 4 1985

Anatomy
Bark anatomy of *Nothofagus* species indigenous to New Zealand — **Rajni N. Patel and Juliet E. Shand** — **511**

Ecology
The vegetation of Mt Karioi, North Island, New Zealand — **K. A. Clayton-Greene and J. B. Wilson** — **533**

A comparison of the cushion plant communities of New Zealand and Tasmania — **Neil Gibson and J. B. Kirkpatrick** — **549**

Reproductive Biology
Reproductive biology of *Geranium sessiliflorum* 1. Flower and flowering biology — **M. Philipp** — **567**

Flowering and fruiting patterns of three species of *Melicytus* (Violaceae) in New Zealand	**Mary H. Powlesland, M. Philipp, and David G. Lloyd**	**581**
Reproductive biology of tree lucerne (*Chamaecytisus palmensis*, Leguminosae)	**C. J. Webb and Juliet E. Shand**	**597**
Taxonomy		
Metrosideros bartlettii (Myrtaceae), a new species from North Cape, New Zealand	**J. W. Dawson**	**607**
Research on the Vegetation of New Zealand		
Review papers from a symposium to mark the retirement of Dr E. J. Godley from Botany Division, DSIR Lincoln, Canterbury, 1–2 May 1984		
Foreword	**Warwick Harris**	**611**
Biosystematics of higher plants in New Zealand 1965–1984	**H. E. Connor**	**613**
Biosystematics of the cryptogamic flora of New Zealand:		
Bryophytes	**Allan J. Fife**	**645**
Algae	**M. J. Parsons**	**663**
Fungi	**W. H. Lintott**	**677**
Pteridophytes	**P. J. Brownsey**	**681**
Paths to maturity	**E. J. Godley**	**687**
Progress in understanding the natural history of New Zealand plants	**David G. Lloyd**	**707**
Plant biogeography and the late Cenozoic history of New Zealand	**M. S. McGlone**	**723**
An introduction to plant demography with a special reference to New Zealand trees	**John Ogden**	**751**
Environmental influences on the vegetation of New Zealand	**P. Wardle**	**773**
The botanical component of conservation in New Zealand	**A. F. Mark**	**789**
DSIR Botanical Publications		**811**
Notice		
International symposium on grass systematics and evolution		**813**
Index to Volume 23		
Author index		**815**
Subject index		**821**
Species index		**825**